



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/071,347   | 02/08/2002  | Daniel R. Meacham    | P04988              | 2782             |
| 7590   | 07/09/2004  |                      | EXAMINER            |                  |
| Docket Clerk<br>P.O. Drawer 800889<br>Dallas, TX 75380 |             |                      | NGUYEN, SIMON       |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2685                | 4                |
| DATE MAILED: 07/09/2004                                |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                    |
|------------------------------|-----------------|--------------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)       |
|                              | 10/071,347      | MEACHAM, DANIEL R. |
|                              | Examiner        | Art Unit           |
|                              | SIMON D NGUYEN  | 2685               |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 08 February 2002.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 19 February 2003 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Rotzoll et al. (5,625,325).

Regarding claim 1, Rotzoll discloses an integrated PLL circuit (fig.7), comprising: a set of integrated circuit capacitors (74) each independently capable of being selectively switched into/out of a LC resonant circuit (column 4 lines 33-44); a capacitance selection controller (731) receiving a signal (740) representative of a difference between a resonant frequency of the LC resonant circuit and a reference frequency (730), wherein the capacitance selection controller controls switching of one or more of the capacitors into/out of the LC resonant circuit in response to the difference between the resonant and reference frequencies to alter the resonant frequency towards the reference frequency (column 4 lines 45-65). It should be noted that a PLL is inherently used in a wireless communication device.

Regarding claim 15, this claim is rejected for the same reason as set forth in claim 1.

Regarding claims 2, 16, Rotzoll further discloses at least one inductor (706) and one capacitor (705) in the LC circuit.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-6, 8-13, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotzoll et al. (5,625,325) in view of Rofougaran et al. (6,738,601).

Regarding claims 3-4, 6, Rotzoll discloses the set of IC capacitors is arranged in parallel and switched into/out of the LC circuit (fig.7, column 4 lines 33-44) wherein the set of IC capacitor is used in the PLL circuit having a phase detector (71). However, Rotzoll does not specifically disclose a sequence of varying capacitances each equal to a multiple of an adjacent capacitance, the capacitors are switched in/out by a bit binary, and the circuit including a divider.

Rofougaran discloses a integration of the transceiver into a single integrated circuit (figs.1-2, column 1 lines 55-57) implement a set of IC capacitors arranged in parallel for selectively switching (fig.12) wherein a sequence of varying capacitances each equal to a multiple of an adjacent capacitance within the sequence (column 17 lines 62-66), the capacitors are switched in/out by a bit binary (column 17 lines 59-61), and the PLL includes a divider (42) and a phase detector (45). Therefore, it would have

been obvious for those skilled in the art at the time the invention was made to have Rotzoll, modified by Rofougaran to have an IC transceiver more economically viable for wider applications and integration with other systems in order to compensate for process variations and mismatches.

Regarding claim 8, Rotzoll discloses a tuner (fig.7), comprising: a set of integrated circuit capacitors (74) each independently capable of being selectively switched into/out of a LC resonant circuit (column 4 lines 33-44); a capacitance selection controller (731) receiving a signal (740) representative of a difference between a resonant frequency of the LC resonant circuit and a reference frequency (730), wherein the capacitance selection controller controls switching of one or more of the capacitors into/out of the LC resonant circuit in response to the difference between the resonant and reference frequencies to alter the resonant frequency towards the reference frequency (column 4 lines 45-65). However, Rotzoll does not disclose the tuner used in a wireless receiver.

Rofougaran discloses an IC transceiver having an antenna, a set of capacitors used in the transceiver (figs. 1, 2, 12). Therefore, it would have been obvious for those skilled in the art at the time the invention was made to have Rotzoll, modified by Rofougaran to implement in a wireless receiver in order to compensate for process variations and mismatches.

Regarding claim 9, this claim is rejected for the same reason as set forth in claim 2.

Regarding claims 5, 12, 19, the modified Rotzoll system, Rotzoll discloses the PLL tuner having only one oscillator stage implemented the set of IC capacitors. The modified Rotzoll does not specifically teach the PLL having a plurality of amplifier stages each having the set of IC capacitors.

It should be noted that a tuner in a wireless transceiver having a plurality of amplifying stages is known to those skilled in the art. therefore, it would have been obvious to one skilled in the art at the time the invention was made to have a set of IC capacitors as taught by Rotzoll in each amplifier stage of the tuner in order to improve the process of compensation in a wide variety of applications.

Regarding claims 10-11, 13, these claims are rejected for the same reason as set forth in claims 3-4, 6, respectively.

Regarding claims 17-18, 20, these claims are rejected for the same reason as set forth in claims 3-4, 6, respectively.

5. Claims 7, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotzoll et al. (5,625,325) in view of Rofougaran et al. (6,738,601), and further in view of Aytur (6,013,958).

Regarding claims 7 and 14, the modified Rotzoll system does not specifically disclose the set of parallel-connected IC capacitors having a series-connected capacitor pair.

Aytur discloses a set of parallel-connected IC capacitors having a series-connected capacitor pair and low impedance coupled to a ground (fig.6, column 4 line

60 to column 5 line 6). Therefore, it would have been obvious for those skilled in the art at the time the invention was made to have modified Rotzoll system, modified by Aytur in order to improve linearity of the capacitance.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schemmel (5,053,723) discloses a PLL having all limitations as claimed in claims 1, 7, 15.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Nguyen whose telephone number is (703) 308-1116. The examiner can normally be reached on Monday-Friday from 7:00 AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban, can be reached on (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Or faxed to:

Application/Control Number: 10/071,347  
Art Unit: 2685

Page 7

(703) 872-9314, (for formal communications intended for entry)

Hand-delivered response should be brought to Crystal Park II,  
2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Simon Nguyen

June 25, 2004

A handwritten signature in black ink that reads "Simon Nguyen". The signature is written in a cursive style with a clear 'S' at the beginning and a 'N' at the end.